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31 MAR 1970

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MEMORANDUM FOR: Director, National Photographic Interpretation Center

SUBJECT : Request for Approval of a Contract with [REDACTED]  
[REDACTED] for the Design of Low Power Objective  
Lenses at a [REDACTED] from FY-1970 R&D Funds

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1. This memorandum requests approval for the commitment of R&D funds for a contract. The specific request is stated in Paragraph 6.

2. The Advanced Stereo Rhomboid, presently under development by [REDACTED], includes three pairs of objectives which provide rhomboid magnifications of 1X, 2X, and 3X. When combined with a Zoom 240 Stereoscope equipped with 10X eyepieces, the system magnification ranges from 7X to 90X, and the field of view ranges from 28mm to 2.2mm. Future acquisition systems will produce imagery with a much larger scale than present systems. During the exploitation of these systems, it becomes very useful to resort to lower magnifications in order to gain the attendant larger fields of view. Also, the current characteristics of the imagery from manned aircraft makes the larger field of view obtained with a  $\frac{1}{4}$ X objective lens highly useful for scanning this type of imagery. At the same time, a  $\frac{1}{2}$ X objective lens would be utilized for scanning of the KH-4, [REDACTED]. Detailed analysis of this imagery would be performed with the presently designed 1X, 2X, and 3X objective lenses. The  $\frac{1}{4}$ X and  $\frac{1}{2}$ X objective lenses, with an associated Zoom 240 Stereoscope equipped with 10X eyepieces, would provide magnifications down to 1.75X and a field of view up to 112mm. IEG has formally requested that TSSG initiate a program to develop both the  $\frac{1}{4}$ X and  $\frac{1}{2}$ X objective lenses. This project is in direct response to that request.

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3. The proposed project will study the feasibility of developing prototype  $\frac{1}{4}$ X and  $\frac{1}{2}$ X objective lenses for the Advanced Stereo Rhomboid. A preliminary study has been made of one possible configuration that can be used in the development of these lenses. Enough analysis has been completed to indicate that the approach appears practical and that the lenses would have the same eyepoint and working distance as the present 1X, 2X, and 3X objective lenses. This project would make preliminary system studies of a number of possible configurations and would, assuming a feasible solution is found, pursue the most promising configuration to complete the preliminary optical design. Monthly

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GROUP 1  
Excluded from automatic  
downgrading and  
declassification

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SUBJECT: Request for Approval of a Contract with [REDACTED]  
[REDACTED] for the Design of Low Power Objective Lenses at a  
Cost of \$ [REDACTED] from FY-1970 R&D Funds

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progress reports will be submitted, and a final report will include the preliminary design data and describe the recommended system. Cost estimates to complete the design and to fabricate the prototype lenses will be submitted at the completion of the preliminary design study. The risk involved in designing the  $\frac{1}{2}X$  objective lenses is considered to be average. The risk in designing the  $\frac{1}{4}X$  objective lenses is considered to be somewhat greater. The contract would be completed within sixteen weeks after authorization to proceed.

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4. [REDACTED] has submitted a proposal for the performance of this work, which is considered satisfactory by the Research and Engineering Division. [REDACTED] has produced the associated Advanced Stereo Rhomboid with 1X, 2X, and 3X objective lenses. Because of the interface requirement, no other company is judged to be capable of satisfactory performance on this contract. Cost of the program would be [REDACTED]

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5. Successful completion of this contract could lead to a follow-on contract for developing prototype  $\frac{1}{4}X$  and  $\frac{1}{2}X$  objective lenses. Cost of the follow-on contract to develop prototypes is unknown since those costs are predicated on the results of this first study. Present indications are that future procurement of production units of these instruments would be for quantities on the order of 150 pairs of  $\frac{1}{2}X$  and 50 pairs of  $\frac{1}{4}X$  objective lenses.

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6. It is requested that approval be granted to negotiate with [REDACTED] for a contract to conduct the program described at a cost not to exceed [REDACTED]

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Chief, Technical Services & Support Group, NPIC

## Attachments:

1. Proposal
2. Form 2420

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APPROVED:

ARTHUR C. LUNDAHL  
Director

National Photographic Interpretation Center

April 15, 1970  
Date

## Distribution:

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REQUEST TO PROCUREMENT DIVISION FOR SERVICES

(other than property or building maintenance and repairs)

OFFICE/DIV/BR NPIC/TSSG/RED	REQUEST NO. 5500-6109-70	DATE OF REQUEST	I CERTIFY THAT FUNDS IN THE ESTIMATED AMOUNT OF \$ <input type="text"/> 25X1 AVAILABLE CHARGE TO FAN 0155-5310
PROJECT TITLE LP Optics for Zoom 240	PROJECT OR CONTACT OFFICER <input type="text"/>	EXTENSION B- <input type="text"/> R- <input type="text"/>	SIGNATURE OF BUDGET OFFICER <input type="text"/> DATE APR 1970 25X1
CONTRACTOR (if known) <input type="text"/>		PROPOSAL NO. AND DATE 9-1579 February 1970	CONTRACT & TASK ORDER NO. (if known)

TYPE OF SERVICE REQUESTED		APPLICABLE ONLY TO REPAIRS AND MODIFICATIONS		
<input checked="" type="checkbox"/> RESEARCH/DEV	TRANSFER OF FUNDS TO OTHER GOVT. AGENCY (specify if applicable)	TECHNICAL INSPECTION IS REQUIRED BY		
<input type="checkbox"/> GRANT		<input type="checkbox"/> RECEIVING DEPOT T & I	<input type="checkbox"/> TECHNICAL MONITOR	
<input type="checkbox"/> REPAIR		<input type="checkbox"/> ITEMS TO BE PICKED UP OR <input type="checkbox"/> SERVICES PERFORMED AT:		
<input type="checkbox"/> MAINTENANCE		ITEMS TO BE REDELIVERED TO:		
<input type="checkbox"/> MODIFICATION				
CONTRACT CLASSIFICATION CONFIDENTIAL		WORK CLASSIFICATION UNCLASSIFIED	HARDWARE CLASSIFICATION UNCLASSIFIED	REPORTS CLASSIFICATION UNCLASSIFIED

SHORT SUBSTANTIVE TITLE AND/OR DESCRIPTION OF SERVICE TO BE PERFORMED

the  Feasibility Study for Developing  $\frac{1}{4}$ X and  $\frac{1}{2}$ X Objective Lenses for  
Advanced Stereo Rhomboid.

(See reverse for specific information required on R&D requests.)

APPROVAL			
DESIGNATION EO/TSSG	SIGNATURE <input type="text"/>		DATE 16 April 70
PROCUREMENT DIVISION USE			
DATE RECEIVED IN PD	RECORDED BY	SECTION ASSIGNED TO	NEGOTIATOR

1. JUSTIFICATION FOR SOURCE SELECTION

25X1 [ ] submitted a proposal for the performance of this work which is considered satisfactory. [ ] has produced the associated Advanced Stereo Rhomboid with 1X, 2X, and 3X objective lenses. No other company is judged to be capable of satisfactory performance on this contract. 25X1

2. PROPOSAL

25X1 To investigate the feasibility of developing  $\frac{1}{4}X$  and  $\frac{1}{2}X$  objective lenses for the [ ] Advanced Stereo Rhomboid and produce recommended design data.

3. DELIVERABLE ITEMS

REPORTS REQUIRED 3 NO. OF COPIES ☒ MONTHLY ☐ INTERIM ☐ QUARTERLY ☒ FINAL

HARDWARE (state type and number)

OTHER  
None

4. GFE REQUIRED

None

5. SPECIAL INSTRUCTIONS

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*Rec'd 2/13/70*

*50051*

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February 12, 1970

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Attention: [redacted]  
Subject: Technical Proposal for Low Power  
Objective Lenses

Gentlemen:

Completion of the Advanced Stereo Rhomboid indicates the desirability of system magnifications which are lower than those currently available. With the present 1X system magnification, the lowest range when used with the Zoom 240 Stereoscope is 7X with a corresponding field of view of 28mm. [redacted] proposes that a study be conducted which will evaluate the feasibility of developing lower power objective lenses which will provide lower system magnification and wider field of view. Our technical proposal number [redacted]-1579 dated February 1970 is enclosed and describes this study.

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I have also enclosed a cost breakdown indicating the cost to perform this program. A cost type contract is recommended. Based on other commitments, at this time we feel the work can be completed within sixteen weeks after your authorization to proceed.

If further information in any regard is required, please feel free to call on me.

Sincerely yours,

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[redacted] dek

[redacted]  
Senior Program Administrator  
Photogrammetric & Military Systems

Enclosures: Technical Proposal  
Cost Breakdown

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